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Before the
Federal Communications Commission
Washington, DC 20554

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In the Matter of)
Amendment of Part 5 of the Commission's)
Rules to Revise the Experimental Radio)
Service Regulations) ET Docket No. 96-256

Comments of Motorola, Inc.

Motorola, Inc., hereby submits its comments in response to the Commission's *Notice of Proposed Rule Making* released herein on December 20, 1997. The Experimental Radio Service plays a vital role in the development of new communications technologies and services.

Maintenance of an efficient ERS regulatory regime that fosters innovation and shortens the time-to-market for new products serves the public interest. Accordingly, Motorola commends the Commission for examining the rules and for proposing changes that should help both the Commission and its licensees fulfill the public policy mandate to strive for the creation of more useful techniques, equipment and services in the advancement of the art and science of communications.

I. Summary

Motorola urges the Commission to focus on ways in which the Experimental Radio Service ("ERS") may operate more efficiently while maintaining essential flexibility. The ERS

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serves needs that are unlike those of the other services. As a catalyst to innovation, the ERS provides the framework for product development. STAs and licenses in the ERS support functionality testing, regulatory compliance testing, trade show demonstrations, limited market tests, and propagation studies. The ERS offers essential authority for testing not only new domestic products, but also communications equipment that is designed and built in the U.S. for use overseas under frequency allocations and services that are markedly different from those covered by other FCC radio services. As such, the ERS benefits the American economy through domestic job creation and helps to combat trade deficits.

Often, the need for experimental authority arises on short notice as unforeseen opportunities and problems occur in product development. The current provisions for the issuance of special temporary authorizations have been administered by the Commission's staff in a manner responsive to these needs. The same spirit of responsiveness to industry needs and flexibility should continue to be the hallmark of the revised regulations. If it is not, the benefit of the Experimental Radio Service will be significantly reduced.

Motorola also urges the Commission to move forward with proposed changes to increase the length of license terms, to provide for electronic filing, and to simplify the application process to cover similar experimental efforts under one authorization. A commitment to process experimental license applications within 30 days should form the goal upon which these process changes rest.

The Commission expressed its belief that some abuses have occurred under the guise of limited market study authority in the ERS. In addressing this issue, the agency should be careful that reforms as implemented do not undercut the legitimate need for limited market studies. Such studies are often an essential tool in the development of new radio services and

technologies. On balance, provisions for legitimate limited market studies foster a much greater likelihood of benefit than potential for abuse.

Protection of public safety frequencies from interference clearly serves the public interest. The Commission can achieve this goal by requiring both a compelling showing of need for ERS operations in such spectrum and an understanding of and willingness to take affirmative steps to avoid such interference. These safeguards can be implemented without an absolute prohibition on any experimentation not deemed of a "public safety nature." Finally, Motorola offers in Appendix A to these Comments recommendations on various rule change provisions that would improve the effectiveness of specific regulations, consistent with the Commission's responsibility to manage the use of the spectrum while continuing to encourage innovation.

II. The Special Temporary Authorization Process Should Continue To Function With The Goal Of Expediting Needed Experimental Operations Without Jeopardizing Interference-Free Operation.

Implementation of the STA rules set forth in § 5.56 of the current regulations has evolved to provide a much-needed mechanism for securing authority to engage in experimentation on a short-term basis. The Commission wisely notes that the need for temporary experimental authority arises often with little notice and frequently in situations in which an underlying experimental license has not been granted.¹ As such, proposed § 5.61 incorporates changes to eliminate the appearance of a requirement that an entity already have an experimental license before seeking an STA. Such a revision is very appropriate.

¹ *NPRM* at ¶ 15.

The proposed revised rules also state that extensions of STAs will be considered only in extenuating circumstances.² At the same time, proposed § 3.61 states that “[t]o continue experimentation under normal circumstances, the holder of temporary authority should apply for a regular experimental license by filing an FCC Form 442 at least 60 days prior to the expiration of its temporary authorization.” As the term “experimental” implies, operation under experimental authority is not always predictable. In order to reduce the possibility for serious disruptions of development efforts that happen to extend beyond six months, the Commission should permit experimental authority to continue in force if an application for license on Form 442 is timely filed. While filing at least 60 days before the expiration of the STA may be feasible in some cases, there also will be a number of circumstances in which the need to extend experimental operations will not be apparent until much closer to the end of the STA term. Accordingly, Motorola urges the Commission to change the 60 day period to 15 days and to provide that the authority granted by the STA be automatically extended, pending completion of processing of the related timely filed application for experimental license.

Such a change would make for better use of Commission staff resources by reducing the situations in which extenuating circumstances must be brought to the Commission’s attention. It would also relieve developers of the burden of shutting down experiments. The Commission, of

² Note 13 of the *Notice* addresses the length of time that some STAs may be granted and notes that certain STAs in the nonbroadcast services are limited to no more than 30 days when an application for a regular license will not be filed and to no more than 60 days when an application for a regular license is to be filed. The limits referenced in that note, however, are for STAs granted under certain non-experimental radio services that are listed in Section 309(b). Experimental STAs issued under Part 5 of the Rules are governed by Section 309(f), which provides for a maximum term of 180 days, renewable for additional 180 day terms.

course, would continue to have the authority needed to shut down promptly any experimental operations that cause interference or stray beyond the scope of their authority.

The condition that operation under an STA not be "in conflict with the Commission's Rules" should be revised to make clear it refers to situations in which such operations are consistent with the Commission's rules governing *experimental* operation. Such an interpretation would be in keeping with the current practice.³ Particularly in the case of equipment being developed for export, testing of products often could not be authorized under other FCC Rules, given allocation and technical parameters which differ from those in the U.S. Therefore, flexibility in the ERS is absolutely essential to support development of equipment for export.

There is a theme in the treatment of STAs in the *NPRM* that implies a significant tightening of the criteria for grant of STAs.⁴ The Commission is right to manage its resources efficiently, but in attempting to reduce what it perceives as an inefficiency when STAs are sought rather than experimental licenses, the Commission should recognize that the need for STAs will often arise in the ERS, probably far more so than in any of the other radio services. Even so, a commitment to grant properly completed experimental license applications within 30 days would probably reduce the number of STAs that are needed as companies would be better able to plan on securing experimental licenses in a timely manner.

In sum, STAs are vital to those engaged in the invention of new techniques and the creation of new products. The revised regulations and the culture surrounding their

³ Appendix A to these comments sets forth proposed revised language.

⁴ Notice at ¶ 18.

implementation should build upon the lessons of the past to maintain a high degree of both flexibility and expedition.

III. A Five Year License Period Would Conserve Both Commission and Industry Resources.

Currently, the maximum experimental license term is two years. The Commission correctly noted that this often necessitates the filing of renewal applications. Motorola commends the Commission for recognizing that a five year license period for those applicants in need of longer term authority would make far better use of both public and private resources.⁵

IV. The Proposal to Provide for Electronic Signatures Will Enhance Efficiency.

Time increasingly becomes a critical factor in the product development chain. By proposing to permit electronic signatures, the Commission has taken an important step. Motorola urges the Commission to move forward not only with electronic signatures, but also with the electronic filing of applications as envisioned in the Nprm. Reducing the cycle time for the processing of applications to 30 days through the use of electronic filing and other efforts would provide benefits throughout the product development cycle and will likely foster greater compliance with the experimental license rules as companies realize that the Commission has improved its processes to facilitate obtaining experimental authority.

⁵ Similarly, the proposal to combine fixed and mobile operations under one license should be implemented. Notice at ¶ 8.

V. The Commission Should Continue to Recognize the Importance of Allowing Limited Market Studies under the ERS as one Critically Important Element in Delivering Timely and Well-Developed Products to Users and Service Providers.

Enormous investments are often required to bring new technologies and services to the public. Before such expenditures are made and before financial support for new services can develop, market trials are essential. Testing the feasibility of concepts in the marketplace often can best be carried out through limited market studies conducted under Part 5 authorizations. Because some limited number of abuses may have occurred over the last 30 years, it is understandable that the Commission has some concerns about limited market studies. As with STAs, however, Motorola urges the Commission to evaluate carefully requests for limited market studies while avoiding actions that would depress innovation and raise new barriers to product development. The public benefits of successful telecommunications product and service development over the last 30 years would appear to outweigh any perceived abuses.

VI. The Experimental Radio Service Rules Should Recognize the Needs of Manufacturers of Public Safety Communications Equipment to Conduct Testing on Public Safety Frequencies.

The Commission rightly notes that public safety communications should not suffer interference as a result of ERS operations. Nonetheless, experimental operations in spectrum allocated for public safety operations are essential to the development and manufacture of equipment that supports public safety communications. For this reason Motorola commends the Commission for recognizing that there are, indeed, situations in which experiments must be

conducted in public safety spectrum.⁶ As one of the world's leading manufacturer of mobile radio equipment for use by public safety agencies, Motorola knows first hand that before these agencies will trust the lives of their own personnel and those they serve to new systems, they expect these systems to have been tested thoroughly.

In other cases, there also are likely valid public interests to be served by experimentation in spectrum that is used for public safety communications (e.g. development and manufacture of equipment for export or equipment that will have both public safety and more general applications). Accordingly, an absolute prohibition on use of public safety frequencies except for what may characterized as "experiments of a public safety nature" would not be appropriate. Instead, where a compelling need for such operations can be shown and where the applicant states unambiguously both its understanding of the need to avoid causing interference and its willingness to coordinate such use with public safety licensees so as to prevent interference to public safety systems, experimental operations should be allowed. To this end, the introductory proposed language of Section 5.85(d) should be revised to read:

Applicants in the Experimental Radio Service should avoid use of public safety frequencies except when performing experiments of a public safety nature or when a compelling showing can be made that such operations are otherwise in the public interest.

Modification of this proposed rule will afford the needed protection of public safety frequencies. It will also focus the review of such operations on whether a compelling need has been shown while lessening the likelihood of having to deal wrestle with extremely broad characterizations of what is of a "public safety nature." It should also make for more efficient use of Commission

⁶ Notice at ¶ 21.

and applicant resources by avoiding the necessity for handling requests for operation in public safety spectrum as matters requiring waivers of the Commission's rules.

Conclusion

The Experimental Radio Service has long served the public by providing the regulatory basis for operations essential to the development of new technologies and services. Changes to the rules governing the ERS should support the need for flexibility in operation and expeditious grant of experimental authority. Motorola urges the Commission to move forward with the revision of the rules in accordance with these principles and the specific recommendations set forth in these comments.

Respectfully Submitted,

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Appendix A

The following comments are directed to specific rules proposed in Appendix A of the *NPRM*:

§ 5.3(g) The words "type approval" should be changed to "regulatory approval" for clarity. While "type approval" is used generically internationally, it has a specific meaning as set forth in Part 2 of the FCC Rules. The term "regulatory approval" would include type approval, type acceptance, certification, notification, verification, and approval by declaration of conformity (should that method ever be applied to equipment for licensed services). While Section 15.7(b) of the Rules provides authority for FCC regulatory compliance testing of Part 15 equipment, it does not include authority for testing of RF susceptibility or immunity, which must often be done to meet international standards. Similarly, authority is needed to test equipment that will be licensed when such testing is done using an antenna other a nonradiating load in lieu of an antenna.

§ 5.3(g) The definition of "person" should be expanded to include "state and local governmental subdivisions." The rules contemplate the grant of experimental authorizations to such entities (see e.g., § 5.57(a) of the proposed rules). While such subdivisions would arguably fall under the classification of "corporations" as bodies corporate under state law, a simple change in the definition of "person" would remove the ambiguity.

§ 5.55(d) The rule should be revised to read: "Applications involving temporary operation: When an experimental program is expected to last no more than six months, its operation shall be considered temporary and the special temporary authorization procedure outlined in § 5.61 shall apply." As proposed in the *NPRM*, the rule appears to restrict operation to a single location. If so interpreted, multiple STAs might be necessary to conduct one short term experiment. Indeed, STAs have been granted to manufacturers heretofore for testing at multiple locations defined broadly but where the manufacturer retains ultimate control. The need for such authority arises where the cooperation of prospective users must be secured, but the precise locations cannot be determined in advance because of the portable nature of the equipment or the nature of the prospective service. The proposed revision would facilitate more efficient use of the resources of the Commission and applicants.

§ 5.61(a) In order to remove ambiguity, the provision should be revised to state "...provided such operation is not in conflict with the Commission's rules in this Part." Without the clarification, an ambiguity would remain as experimental operation, by its very nature, is often at odds with some part of the Commission's rules. Without the proposed change, one seeking to conduct a short term experiment in support of a petition to change the rules would first have to apply for an experimental license, regardless of the duration of the experiment. Because both an STA and an experimental license are subject to the same conditions of no interference and cancellation without hearing, such an approach would waste resources of both applicants and the

Commission. If an experiment proposed for an STA would be likely to cause interference under other rules, the STA would simply not issue unless adequate safeguards could be imposed.

§ 5.61(b) This section should be revised as follows: "Extension of a special temporary authorization will be granted only in extenuating circumstances. To continue experimentation under normal circumstances, the holder of temporary authority should apply for a regular experimental license at least 15 days prior to the expiration of its temporary authority. When such an application is timely filed, operations may continue in accordance with the other terms and conditions of the temporary authority pending disposition of the application unless the applicant is notified otherwise by the Commission."

§ 5.61(c)(6) The word "location" should be changed to "location(s)" to permit more than one fixed location to be requested on a given STA. See the proposed change to 5.55(d) above. Absent such a change, applicants would appear to be forced to file two separate STAs if an experiment involved a single fixed link.

§ 5.63 The reference to "contract numbers" in foreign government contracts should be revised to state "any associated contract number." As proposed in the *NPRM* the rule assumes there is a "contract number." While there probably will be such a number, the rule should not presuppose that foreign governments or commercial foreign entities will use a numbering scheme.

§ 5.73(e) The word "so" should be inserted in order for the clause to read "...and the Commission will do so unless the public interest requires otherwise."

§ 5.77(a)(2) While this proposed rule as written tracks current rule § 5.64, it imposes a needless reporting obligation that hearkens to an earlier era in regulation. If the change does not result in operation inconsistent with any term of the outstanding authorization, there should be no necessity for reporting the change at the next license renewal. Given the very nature of the ERS, changes are frequently made in transmitting equipment. If an interference issue were ever to arise, the Commission could certainly require the holder of an experimental authorization to provide detailed information as to the transmitting equipment.

§ 5.85(d) For the reasons set forth in Motorola's Comments in this proceeding, the opening sentence of § 5.85(d) should be revised to read:

Applicants in the Experimental Radio Service should avoid use of public safety frequencies except when performing experiments of a public safety nature or when a compelling showing can be made that such operations are otherwise in the public interest.

§ 5.85(f)(1) There appears to be an omission in the reference to "free space characteristic impedance." Instead of being "120 ohms", the impedance of free space is usually specified as "120 π ohms" wherein the coefficient 120 is multiplied by the constant "pi."

§ 5.119 This section should be revised to provide simply that the original of the experimental authorization is to be kept in the station records, but need not be posted. If the Commission

believes that it is necessary, the rule could be revised to provide that a copy also be kept at the location of every control point for fixed experimental transmitters as required by current § 5.157(b). The change requested herein would simply facilitate record keeping by Commission licensees. As proposed in the *NPRM*, the requirement would be for keeping the original license "on the premises as a permanent part of the station records... ." Unfortunately, the term "premises" could be construed to mean the location of the transmitter, which could be remote from a control point or other location occupied by the authorization holder's personnel.